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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,278	12/15/2004	Carl Christensen	PU020290	6691

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EXAMINER	
RUTKOWSKI, JEFFREY M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,278	CHRISTENSEN, CARL	
	Examiner	Art Unit	
	Jeffrey M. Rutkowski	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2004* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37.CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/15/2004, 10/09/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuholm (US Pat 6,104,997) in view of Tanizawa et al. (US Pg Pub 2002/0031334), hereinafter referred to as Tanizawa.

4. For **claims 1 and 2**, Shuholm teaches a digital audio receiver with multi-channel swapping **[title]**, used in a broadcast router **[col. 1 lines 25-35]**. The receiver has a first input for the first two channels of an Audio Engineering Society (AES) signal **12** (claim 1: first reference input) and a second input for the third and fourth channels of an AES signal **13** (claim 1: second reference input). A pair of selector circuits **20,22** (claim 1: a reference select circuit) is used to assign data from the channel buffers to an output stream or to the position in an output stream **[col. 2 lines 40-43 and figure 4]**. The output streams are sent to a conventional matrix router

[col. 2 line 56] (claim 1: at least one router component coupled to said reference select circuit; claim 2: wherein said at least one router component further comprises a router matrix). Shuholm does not teach the selector circuits determine whether or not errors were found in the reference signals. Tanizawa teaches the error determination at the selector circuit limitation absent from the teachings of Shuholm by disclosing when a selector receives parity data instead of a packet transfer block, an error was detected in the respective packet transfer block. In response to the parity data, the selector sends the parity information to a delay circuit for further processing **[0306]** (determining whether or not signals were received error-free).

5. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a selector to determine whether or not a signal was received in error in Shuholm's invention to prevent transmitting erroneous information to an end user.

6. **Claims 3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuholm in view of Tanizawa as applied to **claim 1** above and further in view of Lydon et al. (US Pat. 6,680,939), hereinafter referred to as Lydon.

7. For **claims 3 and 4**, which depend from **claim 1**, Shuholm and Tanizawa do not teach the use of transmit or receive expansion ports. Lydon teaches the expansion port limitation absent from the teachings of Shuholm and Tanizawa by disclosing the use of multiple expansion conductors (ports) in a matrix switch core with a large number of inputs and outputs **[col. 4 lines 45-48 and figure 3]** (claim 3: wherein said at least one router component further comprises a transmit expansion port; claim 4: wherein said at least one router component further comprises at least one receive expansion port).

8. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use input and output expansion ports in Shuholm's invention to avoid collisions at the switch core.

9. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lydon in view of Shuholm.

10. For **claim 5**, Lydon teaches a routing switch made up of four 256x256 routers **[col. 4 line 49]** (a router matrix having an input side and an output side). More generically, the router matrix is made up of N signal input terminals and M signal output terminals **[col. 3 lines 20-25]** (N data inputs coupled to the input side, M data outputs coupled to the output side). Lydon does not teach the use of first and second reference inputs. Shuholm teaches the first and second reference inputs absent from the teachings of Lydon by disclosing a router receiver with an input for the first two channels of an AES signal **12** (first reference input) and a second input for the third and fourth channels of an AES signal **13** (second reference input) **[figure 4]**.

11. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a first reference input and a second reference input in Lydon's invention to allow for "channel swapping" **[Shuholm, col. 1 line 33]**.

12. **Claims 6 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lydon in view of Shuholm as applied to **claim 5** above, and further in view of Donak et al. (US Pat 6,330,316), hereinafter referred to as Donak.

13. For **claim 6**, which depends from **claim 5**, Lydon and Shuholm do not teach the use of a routing engine. Donak teaches the routing engine limitation absent from the teachings of Lydon

and Shuholm by disclosing a routing engine **120** interfaces with a switching matrix **100** and terminal trunk lines **150 [figure 1]** (wherein said broadcast router further comprises a routing engine).

14. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a routing engine in Lydon's invention to determine the proper output interface to route information to a destination.

15. For **claim 7**, which depends from **claim 6**, Lydon does not teach the use of a reference select circuit. Shuholm teaches the reference select circuit limitation absent from the teachings of Lydon by disclosing a pair of selector circuits **20,22** (wherein said broadcast router further comprises a reference select circuit) is used to assign data from the channel buffers to an output stream or to the position in an output stream **[col. 2 lines 40-43 and figure 4]**.

16. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a reference select circuit in Lydon's to perform "channel swapping".

17. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuholm in view of Bopardikar et al. (US Pat 6,826,778), hereinafter referred to as Bopardikar.

18. For **claim 8**, Shuholm teaches a digital audio receiver with multi-channel swapping **[title]**, used in a broadcast router **[col. 1 lines 25-35]**. The receiver has a first input for the first two channels of an Audio Engineering Society (AES) signal **12** and a second input for the third and fourth channels of an AES signal **13**(providing a broadcast router having first and second reference inputs; applying a first reference signal to said first reference input). Shuholm teaches input streams may be read in any combination depending upon a user's input to a pair of selectors **[col. 2 lines 45-50]** (if said user desires that said broadcast router operate with multiple

reference signals, applying a second reference signal to said second reference input). Shuholm teaches the input signals could come from multiple sources **[figure 3]**. Shuholm does not teach the use of redundant reference signals. Bopardikar teaches the redundant reference signal limitation absent from the teachings of Shuholm by disclosing two video buffers convey two real-time video streams to a router at 27 Megahertz **[col. 16 lines 10-16]** (if a user desires that said broadcast router operate with redundant reference signals, applying said first reference signal to said second reference input). The specification suggests video streams occupying the same frequency band are redundant reference inputs **[Specification, page 8 lines 25-30]**.

19. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use redundant signals in Shuholm's invention to account for times when a signal from one source may not be available.

20. **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuholm and Bopardikar as applied to **claim 8** above, and further in view of Tanizawa.

21. For **claims 9 and 10**, which depend from **claims 8 and 9 respectively**, Shuholm teaches a pair of reference select circuits **20,22** (claim 9: providing a reference select circuit) interface with a matrix in a router **[col. 2 line 56 and figure 4]** (claim 9: reference-signal demanding components; claim 10: wherein said reference signal components are reference-signal insensitive). Shuholm does not teach the selector circuits determine whether or not errors were found in the reference signals. Tanizawa teaches the error determination at the selector circuit limitation absent from the teachings of Shuholm by disclosing when a selector receives parity data instead of a packet transfer block, an error was detected in the respective packet transfer

block. In response to the parity data, the selector sends the parity information to a delay circuit for further processing **[0306]** (determining whether or not signals were received error-free).

22. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a selector to determine whether or not a signal was received in error in Shuholm's invention to prevent transmitting erroneous information to an end user.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Moriwaki et al. (US Pat 7,212,525) disclose a 4x4 crossbar switch that uses multiple ingress and egress ports. Huang (US Pat 5,841,775) teaches a N input N output scalable switching system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey M. Rutkowski whose telephone number is (571) 270-1215. The examiner can normally be reached on Monday - Friday 7:30-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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11/02/2007

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